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Preparation of Alimentary Substances from Fruit.

LETTERS PATENT to Jean Louis Lucas and Albert de Briges, Chemists of Paris, in the French Empire, for the Invention of "IMPROVEMENTS IN PREPARING CERTAIN LIQUID OR SOLID ALIMENTARY SUBSTANCES FROM THE HUSK OF A CERTAIN FRUIT."

Sealed the 28th November 1856, and dated the 15th July 1856.

PROVISIONAL SPECIFICATION left by the said Jean Louis Lucas and Albert de Briges at the Office of the Commissioners of Patents, with their Petition, on the 15th July 1856.

We, JEAN LOUIS LUCAS and ALBERT DE BRIGES, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN PREPARING CERTAIN LIQUID OR SOLID ALIMENTARY SUBSTANCES FROM THE HUSK OF A CERTAIN FRUIT," to be as follows:—

The object of our Invention is the preparation of alimentary substances from the outer shell or husk of the walnut, an operation which is rendered somewhat difficult by the tendency of the shell or husk to ferment to too great a degree, or to become oxidized and injured. We tear the husk from the walnut and press it immediately, and place it in contact with a syrup or solution of saccharine matter of a proper strength, which may afterwards be diluted. A certain degree of fermentation now takes place, either spontaneously or with the aid of yeast or other ferment. The husk is thus converted into a substance adapted for food, in lieu of being a bitter nauseous substance. One mode of proceeding is to place the husks in heaps, when they undergo a certain

amount of spontaneous fermentation, and are converted into a sweet pulp somewhat resembling baked apples in taste and smell. This pulp being baked in an oven, with the addition of sugar, furnishes a solid or pasty aliment, which may be employed for food both for men and animals. By pressing the pulp a juice is obtained, which being immediately placed in close vessels, and protected from air and water and oxidizing agents, may be preserved for a long time. A liquid aliment or beverage is prepared by dissolving some sugar in water and adding a portion of this juice, and placing it in a cask or close vessel. Fermentation commences and proceeds as with wine or cider. A cask of this beverage may be in use for some time without becoming sour, as although the fermentation goes on until the liquid ultimately becomes acid, as with wine or cider, yet the progress of the fermentation is less rapid. By continuing the fermentation we obtain vinegar, or by distilling the liquid we obtain spirit or alcohol. By adding various aromatic substances and various sorts of saccharine substances to the juice, during its fermentation, we obtain beverages of various different flavours. We also introduce the unfermented juice into aerated and other liquors, and we employ the juice or the solid material in lieu of or together with hops in the manufacture of beer.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Jean Louis Lucas and Albert de Briges in the Great Seal Patent Office on the 22nd December 1856.

TO ALL TO WHOM THESE PRESENTS SHALL COME, we, Jean Louis Lucas and Albert de Briges, Chemists, of Paris, in the French Empire, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Fifteenth day of July, in the year of our Lord One thousand eight hundred and fifty-six, in the twentieth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto us, the said Jean Louis Lucas and Albert de Briges, Her special licence that we, the said Jean Louis Lucas and Albert de Briges, our executors, administrators, and assigns, or such others as we, the said Jean Louis Lucas and Albert de Briges, our executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands,

and Isle of Man, an Invention for "IMPROVEMENTS IN PREPARING CERTAIN LIQUID OR SOLID ALIMENTARY SUBSTANCES FROM THE HUSK OF A CERTAIN FRUIT," upon the condition (amongst others) that we, the said Jean Louis Lucas and Albert de Briges, our executors or administrators, by an instrument in writing under our or their hands and seals, or under the hand and seal of one of us or them, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that we, the said Jean Louis Lucas and Albert de Briges, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof (that is to say):—

The object of our Invention is the preparation of liquid and solid alimentary substances from the pericarp or outer shell or husk of the walnut, for which purpose we have made a variety of experiments on the fermentation of the walnut husk mixed with sugar, and in its treatment, so as to produce from it a drink or beverage, or a concentrated juice or preserve, or a solid article of food. It was found necessary to avoid as much as possible the inconveniences arising from the use of yeast or other artificial ferments, which often communicate an unpleasant flavour to the beverages prepared with them, when such flavour is not overpowered or covered by the addition of a large proportion of aromatic substances. An insufficient alcoholic fermentation was also to be feared, as well as the production of putrefiable mucilage, and it was necessary to guard against the excessive oxidation of the walnut husk, which is acted on very rapidly by the oxygen of the atmosphere. We have succeeded in overcoming these difficulties by rapidly tearing up the husk, pressing it immediately, and placing the juice in contact with a syrop or solution of sugar of variable strength, according to the purpose for which it is required, and which may be subsequently diluted with water if required. Fermentation soon takes place, or may be accelerated if required by the addition of yeast or other ferment. By proceeding in this manner we are enabled to convert the husk of the walnut into liquid and solid alimentary substances adapted for the food of men and animals.

By proceeding in the following manner we prepare a juice which is easily transportable, and which may be preserved for a long time, and is adapted for the preparation of a beverage which may be employed in lieu of wine, or cider or beer:—We take the husk or pericarp of the walnut, at any period of

its growth, but by preference when it is green and before the fruit has ripened. It is fermented as herein-after mentioned, and the fermented pulp is pressed by means of a hydraulic or other press, so as to extract the juice as quickly as possible, and to protect it from being oxidized by the air, which would produce an acid identical with or similar to butyric acid, the presence of which in the drink or beverage is to be avoided by all means. By extracting the juice as rapidly as possible, and receiving it in vessels which are immediately closed, the saccharine fermentation is prevented from passing into the putrid fermentation. The strong juice thus obtained being kept out of contact with water or air, or other oxidizing agents, may be preserved for years with all its aromatic properties, and may be carried on long voyages for the use of sailors and others. We prepare a solid alimentary substance in the following manner:—The husks of the walnut are placed in heaps, and allowed to undergo a spontaneous fermentation, by which they are converted from a bitter disagreable substance into a soft sweet pulp, somewhat similar to baked apples in taste and smell. This pulp (with or without the addition of sugar) is then baked in an oven, which may be heated by hot air or by steam, in such a manner that the temperature may be easily regulated. A solid or pasty aliment or jam is thus obtained, which may be used for the food of men or animals. In preparing both the solid and liquid substances, we avoid as much as possible oxidation or the addition of water. This is effected with the liquid preparation by adding sugar, or by placing it in vessels carefully closed, and with the solid preparation by baking it immediately, with or without the addition of sugar. These liquid and solid products may be used in various ways. The liquid products may be evaporated or concentrated to a thick or pasty consistence, as may be required. To produce a beverage or fermented liquor, we mix from ten to twenty pounds of the juice with twenty gallons of water, and we add immediately from ten to forty pounds of sugar. It is preferable to dissolve the sugar first in the water, and then to add the juice to it, the better to avoid any oxidation. The mixture is placed in close vessels, and immediately begins to ferment, and the fermentation proceeds in a similar manner to that of wine or cider, but it lasts a longer time. A cask of this beverage may be gradually consumed, and may remain in use for a long time without becoming sour or spoiled, as the tendency to oxidation, which is so great in the first stage of the preparation, has now disappeared. The substance, after being combined with sugar and water, proceeds gradually through the alcoholic and acetous fermentations in the ordinary course, but less rapidly than wine or cider. We have also found that this substance, being obtained without the aid of heat, and free from any empyreumatic flavour, produces

spirit and vinegar of good flavour. Moreover, the mixture of the juice during its fermentation with various saccharine substances, more or less charged with aroma, modifies advantageously their aroma, and destroys in many saccharine substances certain disagreable or objectionable flavours, which interfere with their use. We also introduce the unfermented juice of the walnut husk mixed with sugar in aerated liquors, and we employ the walnut husk or its juice in lieu of or mixed with hops in the preparation of beer. We also dry or desiccate the walnut husk when it is required to preserve it for some time before treating it as herein-before described.

Having now described the nature of the Invention, and in what manner the same is to be performed, we wish it to be understood that we do not confine ourselves to the proportions herein-before mentioned, as the same may be varied; but what we claim is,—

First, the new application of the walnut husk to the preparation of liquid and solid alimentary substances, by combining it with sugar or saccharine substances, as herein-before described.

Second, the mode or modes herein-before described of treating the walnut husk, so as to obtain a juice capable of being preserved, or a beverage similar to sweet wine or cider, or a spirit or vinegar, or an unfermented syrop suitable for mixing with aerated liquors, as herein-before described.

Third, the mode or modes of treating the walnut husk by spontaneous fermentation and the action of heat, so as to produce a solid or pasty alimentary substance, as herein-before described.

Fourth, the application of the walnut husk or its juice, in lieu of or together with hops in the manufacture of beer, as herein-before described

In witness whereof, we, the said Jean Louis Lucas and Albert de Briges, have hereunto set our hands and seals, this Sixteenth day of December, in the year of our Lord One thousand eight hundred and fifty-six.

J. L. LUCAS. (L.S.)
A. DE BRIGES. (L.S.)

Witness,

Ch. Armengaud, Ingr Civil,
Boulevard de Strasbourg, No. 23,
à Paris.

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